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MAR 21 2007

**REMARKS/ARGUMENTS**

Applicant thanks the Examiner for review of the present application as evidenced by the Office Action dated November 21, 2006. Applicant respectfully requests reconsideration of the objections contained therein.

Claims 3-4, 9-12 and 15 have been amended by this Response. Claims 1-19 remain in the application. No new matter has been entered by this Response.

The Examiner objected to claims 9 and 15 because of formalities. Applicant has amended claims 9-12 and 15 to replace the objectionable terms with acceptable language.

The Examiner rejected claims 1-19 under 35 U.S.C. § 101 and 35 U.S.C. § 112, first paragraph, asserting "the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility." Applicant disagrees. First, the Examiner has failed to establish any factual basis to establish a prima facie case of lack of utility. No reasons have been given by the Examiner as to why the claims lack utility. Nevertheless, in an effort to speed prosecution of this application, applicant points to the specification, which is replete with examples of the well-established utility of the claimed invention. For example, pages 11-12 describe a communications system that may use the invention for transmitting messages. A person of ordinary skill in the art would immediately appreciate why the claimed invention is useful in such a communications system based on the characteristics of the invention (e.g., minimizing detectability of a communications signal), and the claimed invention therefore has well-established utility.

Furthermore, the disclosure that the invention may be used in a communications system such as the one described in the specification establishes a specific and substantial utility of the invention. Such disclosed application is not merely a 'throw-away' or non-credible application – it is the specific application in which "a method of minimizing detectability of an electronically communicated message (claim 1), "a method of minimizing detectability of a message transmitted by a frequency hopping algorithm" (claim 9), and "a method of electronically transmitting a message" (claim 15) would be most credibly used. Applicant believes such review of the specification and claims fully supports a finding of a well-established utility, as well as a specific and

substantial utility, and therefore requests the rejections under 35 U.S.C. §§101 and 112 be withdrawn.

The Examiner rejected claims 1, 4 and 6 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,047,018 to EMI in view of U.S. Patent Application Pub. No. 2006/0239334 to Kwon, et al. Applicant respectfully traverses this rejection.

With respect to claim 1, EMI discloses a multi-carrier communication device using a plurality of frequencies. The Examiner states that the "time period between two hops T1 & T2 represents the dwell time (in light of the Specification) and read on the claim limitations...." As described in the Specification of EMI, each element T1 – T7 is a time slot. Correctly defined then, according to the Examiner's interpretation of EMI, T1 is a time slot having a certain duration, i.e., a dwell period. The Examiner then asserts that the elements T1, ... T7 & F1, ... F127 in Figure 1 of EMI satisfy applicant's claim limitation of "dividing the dwell period into a plurality of sub-dwell periods, where each sub-dwell period has a nominal sub-frequency assigned thereto according to the predetermined frequency modulation pattern." However, the Examiner has already asserted that the time period between two hops, e.g., T1 & T2, is the dwell period, and therefore the elements T1 – T7 cannot be re-defined as sub-dwell periods. Therefore, EMI does not disclose subdividing each of the dwell periods T1-T7 into a plurality of sub-dwell periods. Because the cited art does not disclose dividing the dwell period into a plurality of sub-dwell periods, where each sub-dwell period has a nominal sub-frequency assigned thereto according to the predetermined frequency modulation pattern," as recited in claim 1, claim 1 is allowable.

Claims 4 and 6 depend directly or indirectly from allowable claim 1 and are therefore allowable for at least the same reasons claim 1 is allowable.

The Examiner rejected claims 2, 3, 5, 9-12 and 15-18 under 35 U.S.C. §103(a) as being unpatentable over EMI in view of Kwon, and further in view of U.S. Patent No. 6,865,216 to Beamish et al. Applicant respectfully traverses this rejection.

Claims 2, 3 and 5 depend directly or indirectly from allowable claim 1 and are therefore allowable for at least the same reasons claim 1 is allowable. With respect to claim 2, Beamish discloses a frequency-hopping cordless telephone. For each dwell time, defined as  $T_c$ , the system can transmit on one or more frequencies. However, the transmissions on those frequencies are static and do not increase or decrease. This is

different from applicants' claimed increasing or decreasing a nominal sub-frequency during the respective sub-dwell time. As shown in Applicant's Figure 3, for example, each sub-dwell period s1-s20 has a frequency that is increasing or decreasing during the sub-dwell period, as shown graphically by the angled tops of the polygons in Figure 3. In contrast, Beamish has no sub-dwell times, and the frequencies upon which it transmits do not increase or decrease even within the dwell periods  $T_c$ . The frequencies may overlap but do not change, as graphically shown by the horizontal bars of Figure 3. The other cited references fail to disclose, alone or in combination with each other, the features claimed in applicants' claim 2. Therefore, claim 2 is allowable.

With respect to claim 3, applicant has amended claim 3 to recite "increasing a time that the transmitted frequency transitions, while still transmitting," from one randomly ordered nominal sub-frequency to the next. This is different from the disclosure of Beamish. The Examiner refers to Beamish, stating "[i]t is noted that the different frequency slots (claimed 'sub-frequency') are randomly ordered between time interval  $T_c$  to  $2T_c$  and from  $2T_c$  to  $3T_c$  and so on (figure 3)", and goes on to assert that such disclosure "reads on claim limitations of increasing a time that the transmitted frequency transitions from one randomly ordered nominal sub-frequency to another." The applicant disagrees that the mere random ordering of frequencies, inherent in any frequency hopping algorithm, necessarily increases the transition time that a transmitted frequency transitions between random nominal sub-frequencies. Moreover, nothing in Beamish or the remaining references suggests that a transition time between randomly ordered nominal sub-frequencies is increased while still transmitting. Claim 3 is therefore allowable.

The Examiner refers to parts of Beamish to read on claim 5, which states "the nominal transmission frequency is one of a plurality of frequency hops of a frequency hopping strategy, and wherein the dwell period is an amount of time the frequency hopping algorithm is configured to maintain the one of the plurality of frequency hops." However, this reference to Beamish actually undermines the Examiner's previous characterization of Beamish. For example, Beamish clearly states each time interval  $T_c$  is a dwell time in which a message is transmitted in one or more frequency slots. However, the Examiner has characterized the frequency slots of Beamish as 'sub-frequency slots' with respect to claims 2 and 3, and specifically with respect to claim 2,

the Examiner states that the change in frequency between dwell times as a varying of a nominal sub-frequency during a respective sub-dwell period. Now, with respect to claim 5, the Examiner states  $T_c$  is a dwell time and not a sub-dwell time as previously asserted. Applicants believe the Examiner's arguments against claim 5, contradicting arguments made in previous rejections, are evidence Beamish does not contain the proper disclosure to reject applicant's claimed invention. Claim 5 is therefore allowable.

Claim 9 includes similar limitations to the limitations of claims 1 and 2 and, for the reasons articulated above, is therefore allowable as well.

Claims 10-12 depend from allowable claim 9 and are therefore allowable for the same reasons claim 9 is allowable. With respect to claim 10, applicant repeats the arguments made with respect to claim 3 above, and specifically disagrees that the mere random ordering of frequencies, inherent in any frequency hopping algorithm, necessarily increases the transition time that a transmitted frequency transitions between random nominal sub-frequencies. Claim 10 is therefore allowable.

Claim 15 includes similar limitations to the limitations of claim 1 and, for the reasons articulated above, is therefore allowable as well.

Claims 16-18 depend from allowable claim 15 and are therefore allowable for the same reasons claim 9 is allowable. Furthermore, claim 16 includes similar limitations to those of allowable claim 2. Claim 16 is therefore allowable for the same reasons claim 2 is allowable. Claim 17 contains limitations similar to those of allowable claim 3. Claim 17 is allowable for the same reasons claim 3 is allowable. Claim 18 contains limitations similar to those of allowable claim 5. Claim 18 is allowable for the same reasons claim 5 is allowable.

The Examiner rejected claims 7 and 13 under 35 U.S.C. §103(a) as being unpatentable over Emi in view of Kwon and Beamish, and further in view of U.S. Patent No. 6,434,184 to Lindsey. Applicant respectfully traverses this rejection. Claims 7 and 13 depend from allowable claims 1 and 9, respectively, and are therefore allowable for at least the same reasons claims 1 and 9 are allowable.

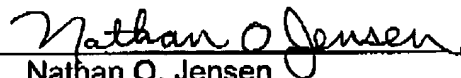
The Examiner rejected claims 8 under 35 U.S.C. §103(a) as being unpatentable over Emi in view of Kwon, and further in view of U.S. Patent No. 5,084,901 to Nagazumi. Applicant respectfully traverses this rejection. Claim 8 depends from

allowable claim 1 and is therefore allowable for at least the same reasons claim 1 is allowable.

The Examiner rejected claims 14 and 19 under 35 U.S.C. §103(a) as being unpatentable over Emi in view of Kwon and Beamish, and further in view of Nagazumi. Applicant respectfully traverses this rejection. Claims 14 and 19 depend from allowable claims 9 and 15, respectively, and are therefore allowable for at least the same reasons claims 9 and 15 are allowable.

Accordingly, with entry of this amendment and consideration of the arguments and remarks contained herein, all pending claims are now allowable, and a notice of Allowance is earnestly solicited. The Examiner is invited to contact the undersigned attorney if further issues remain in the prosecution of this application.

Respectfully Submitted,

  
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